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FIG. 1

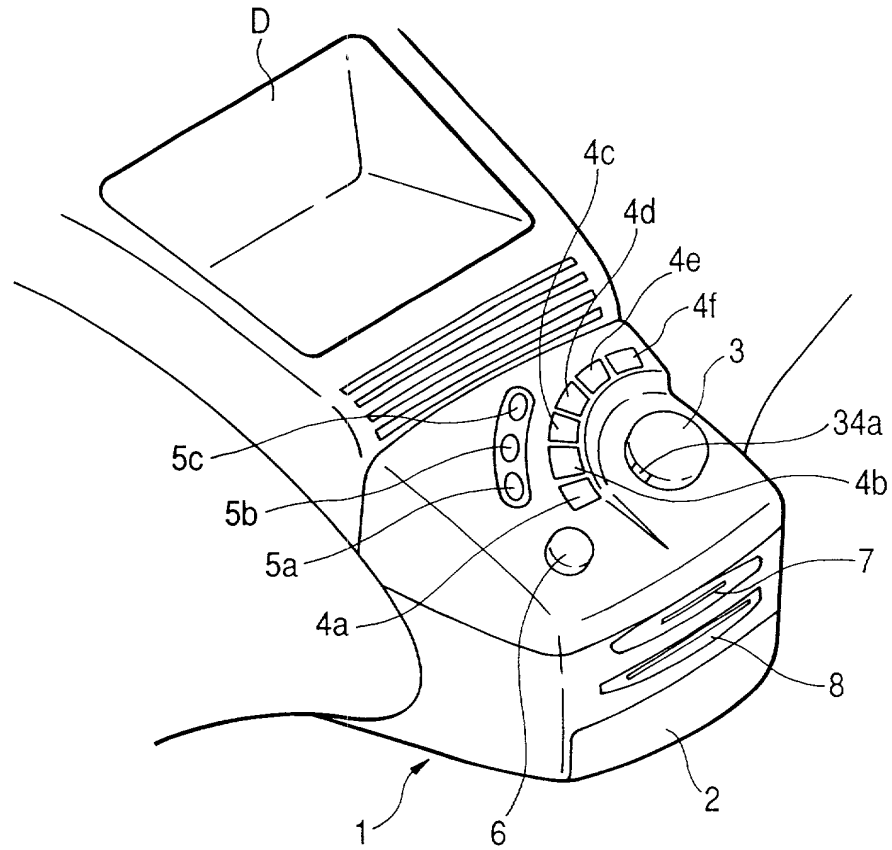
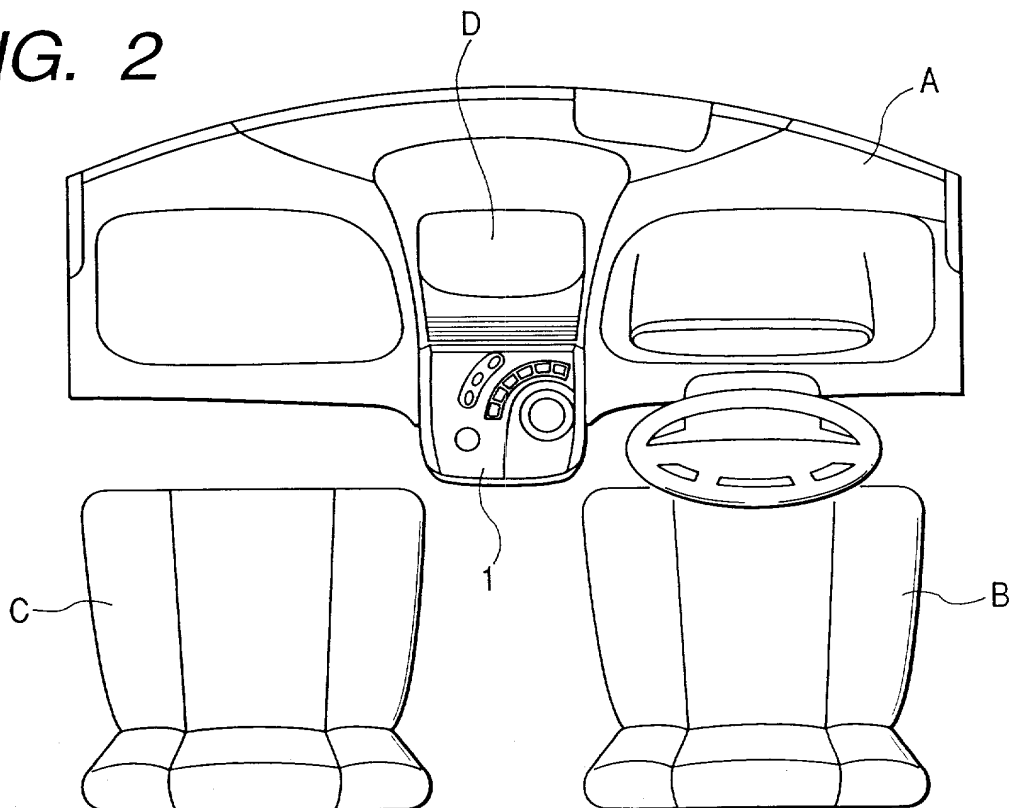
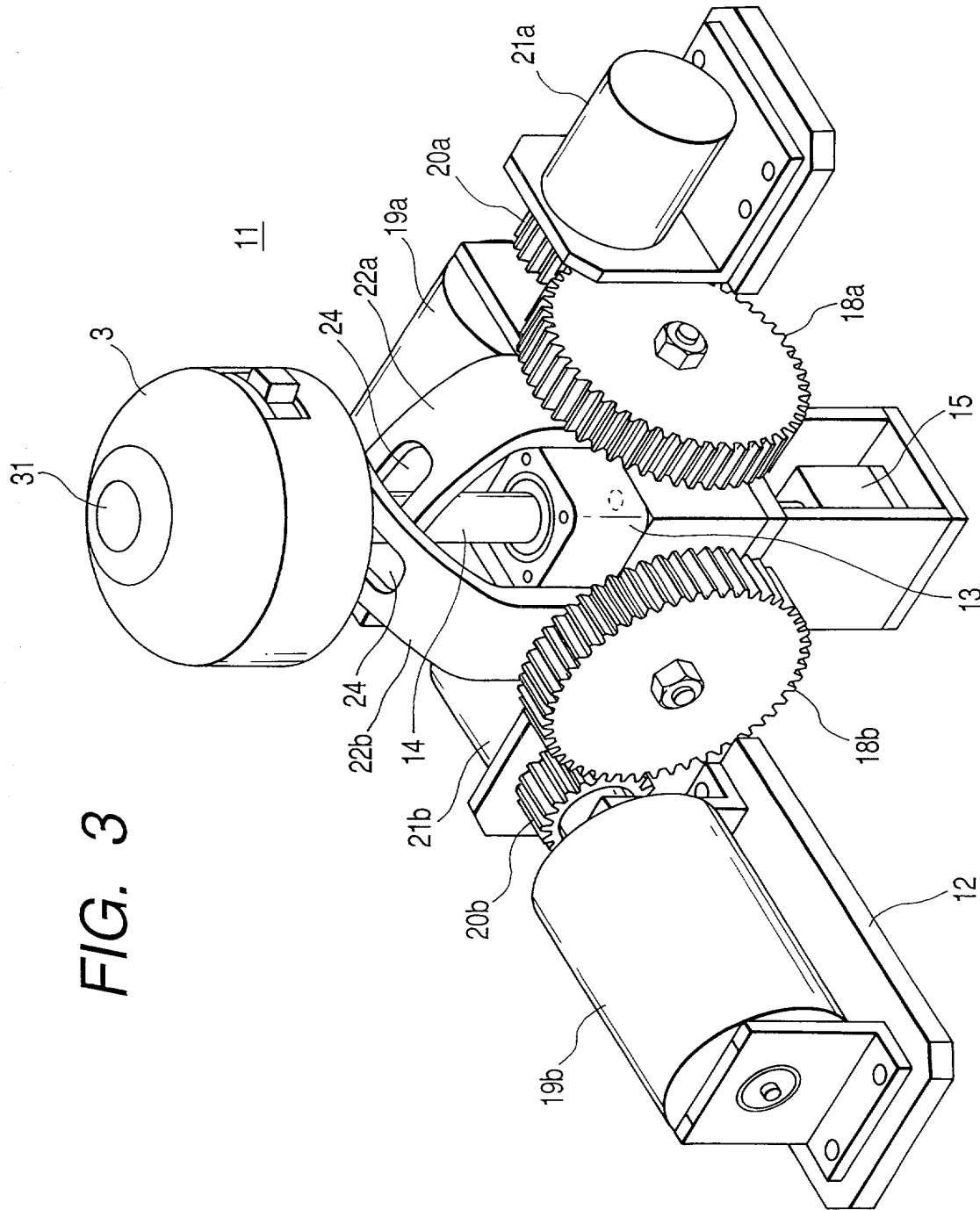


FIG. 2



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**FIG. 4**

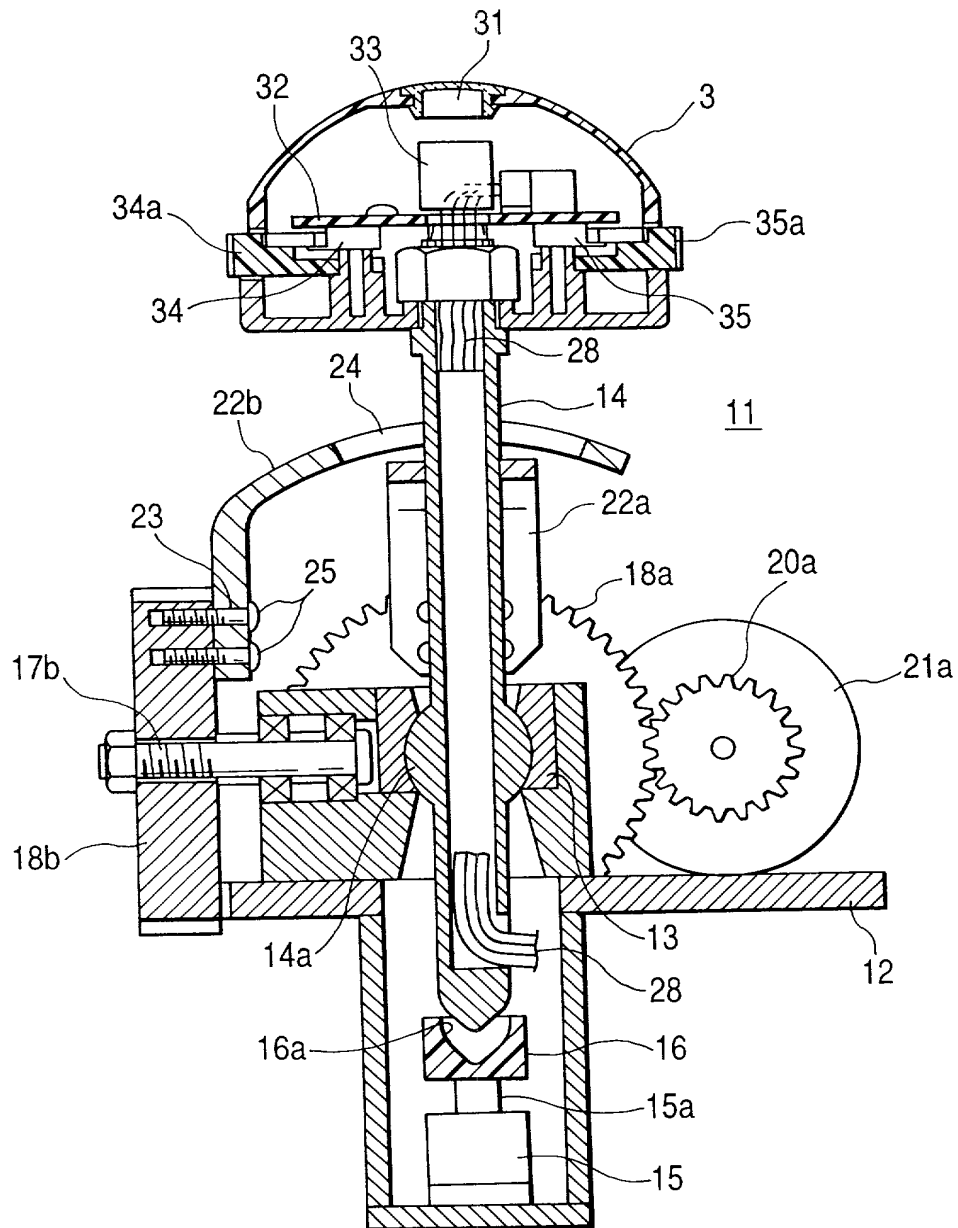
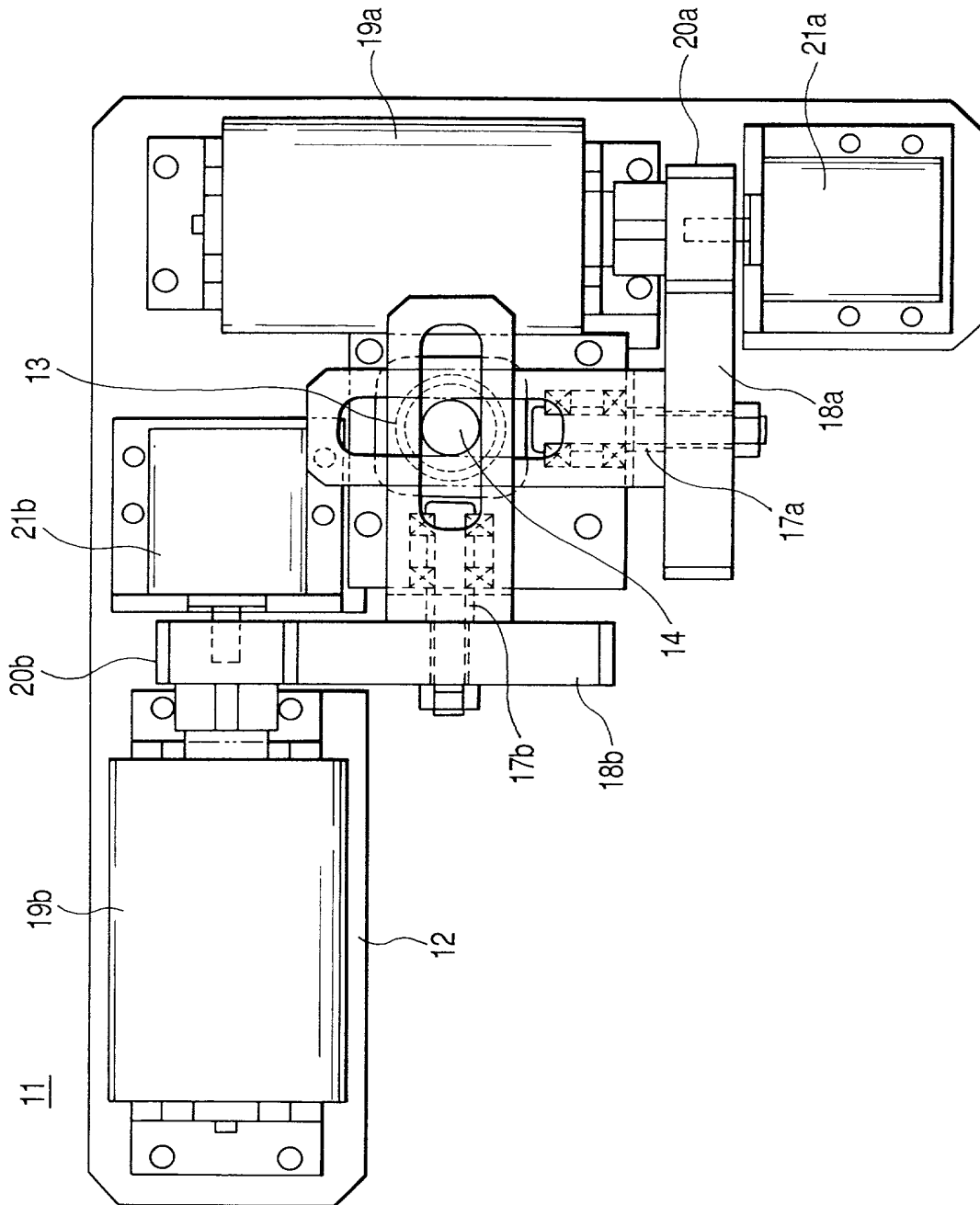
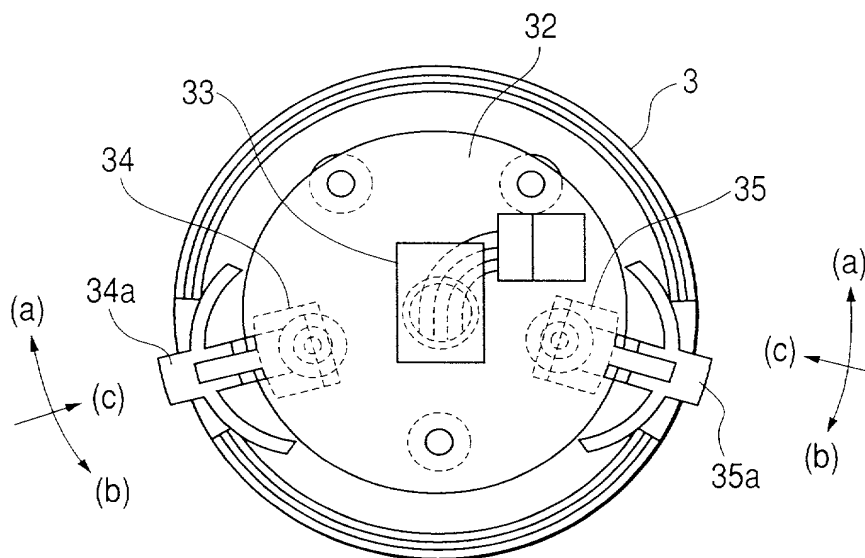


FIG. 5



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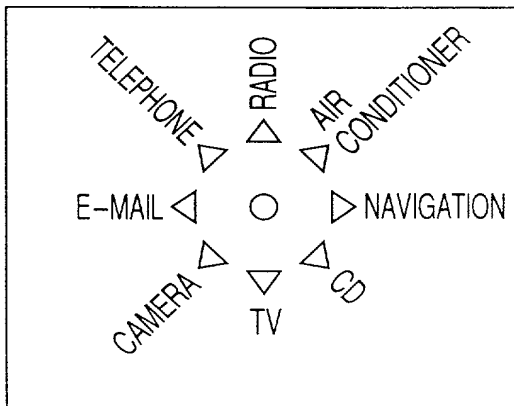
*FIG. 6*



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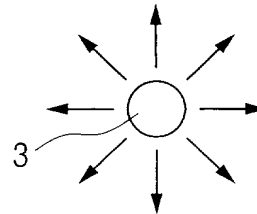
**FIG. 7A**

MENU



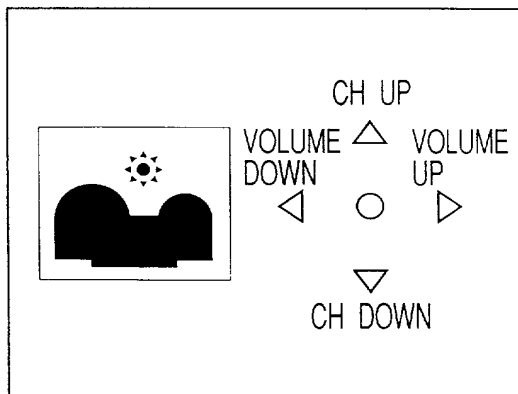
**FIG. 7B**

MOVABLE DIRECTIONS OF  
MANUAL MANIPULATOR



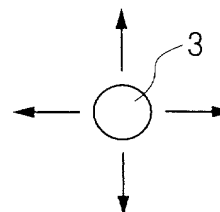
**FIG. 8A**

MENU



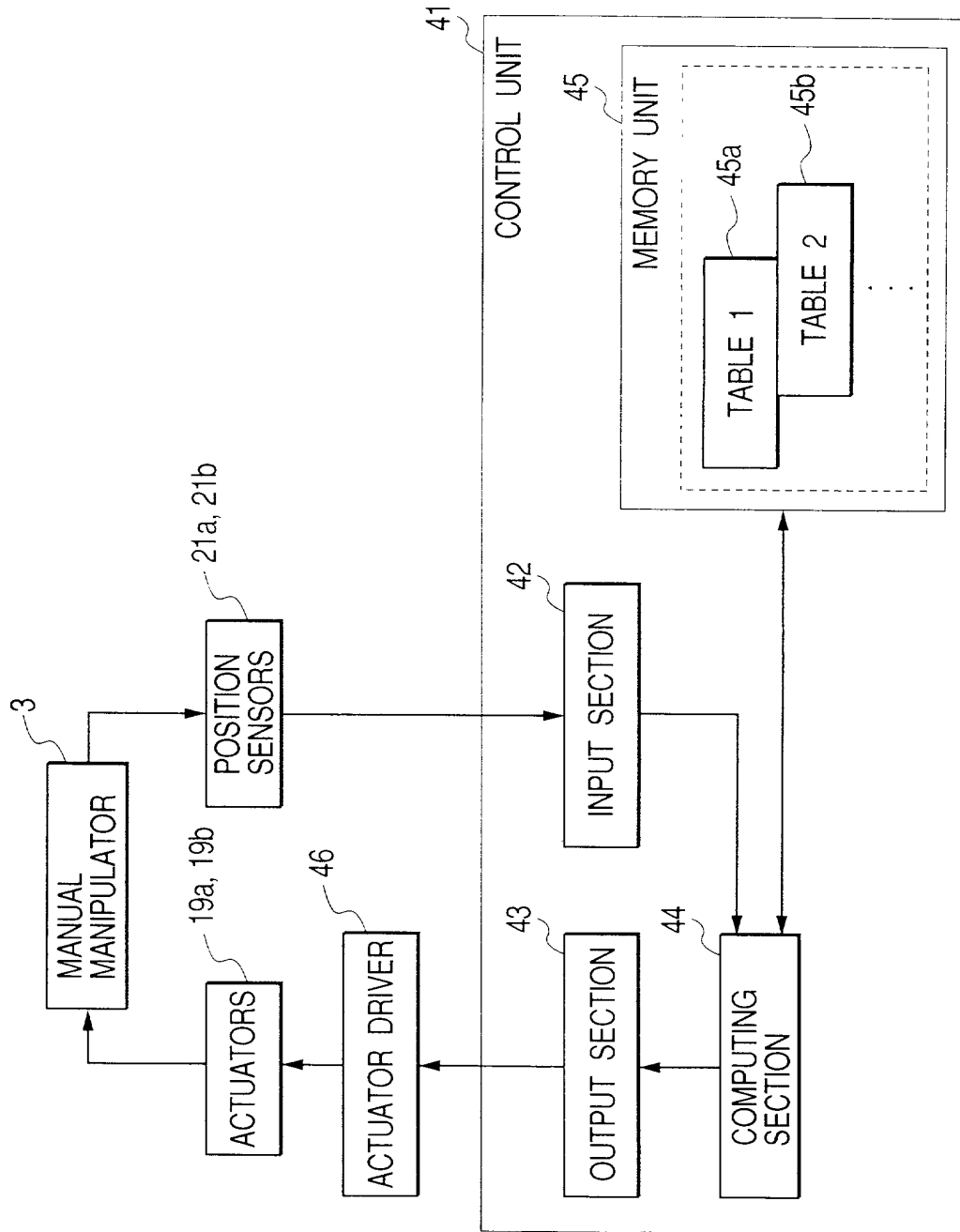
**FIG. 8B**

MOVABLE DIRECTIONS OF  
MANUAL MANIPULATOR



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FIG. 9



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*FIG. 10*

Y DIRECTION

↑ +  
↓ -

X0	X1	X2	X3	X4	X5	X6	X7	
+1	+1	+1	0	0	-1	-1	-1	Y7
-1	0	0	0	0	0	0	-1	
0	+1	+1	0	0	-1	-1	0	Y6
-1	-1	0	0	0	0	-1	-1	
0	0	+1	0	0	-1	0	0	Y5
-1	-1	-1	0	0	-1	-1	-1	
0	0	0	0	0	0	0	0	Y4
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	Y3
0	0	0	0	0	0	0	0	
0	0	+1	0	0	-1	0	0	Y2
+1	+1	+1	0	0	+1	+1	+1	
0	+1	+1	0	0	-1	-1	0	Y1
+1	+1	0	0	0	0	+1	+1	
+1	+1	+1	0	0	-1	-1	-1	Y0
+1	0	0	0	0	0	0	+1	

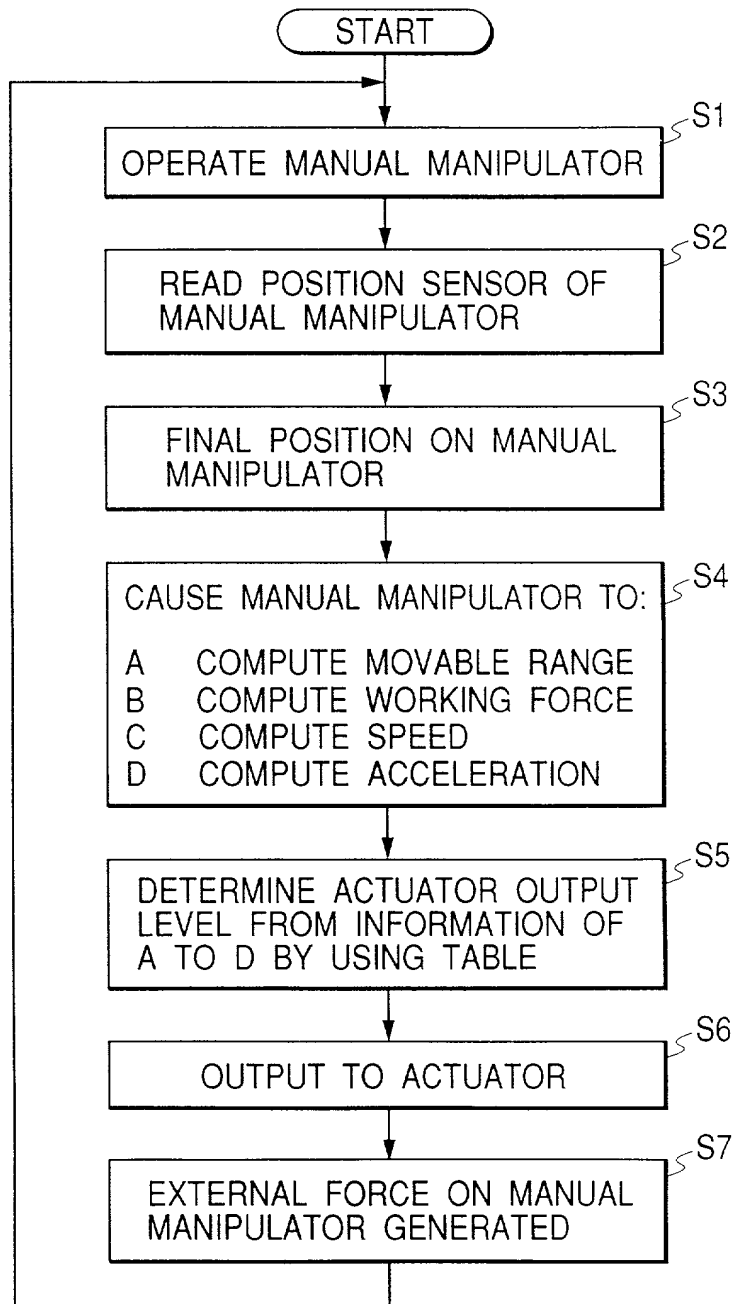
— — — — — → +  
← -

X DIRECTION



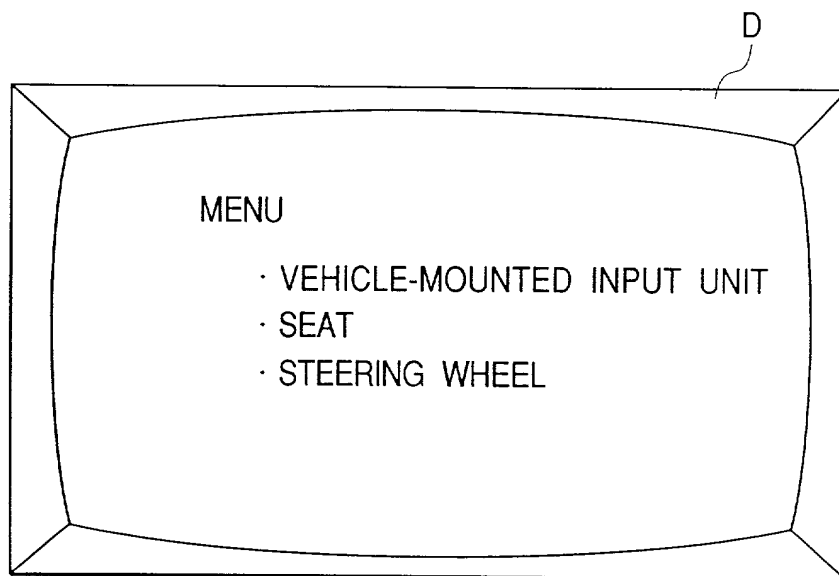
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**FIG. 11**

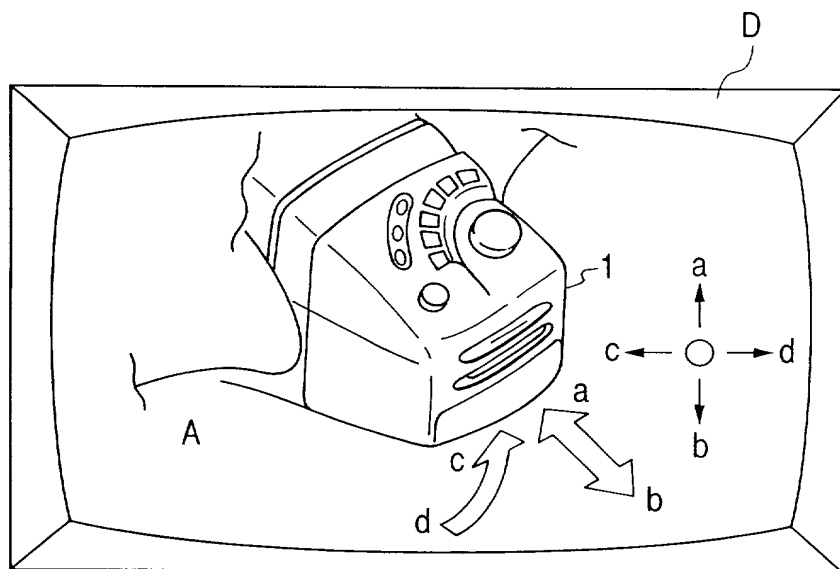


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*FIG. 12*

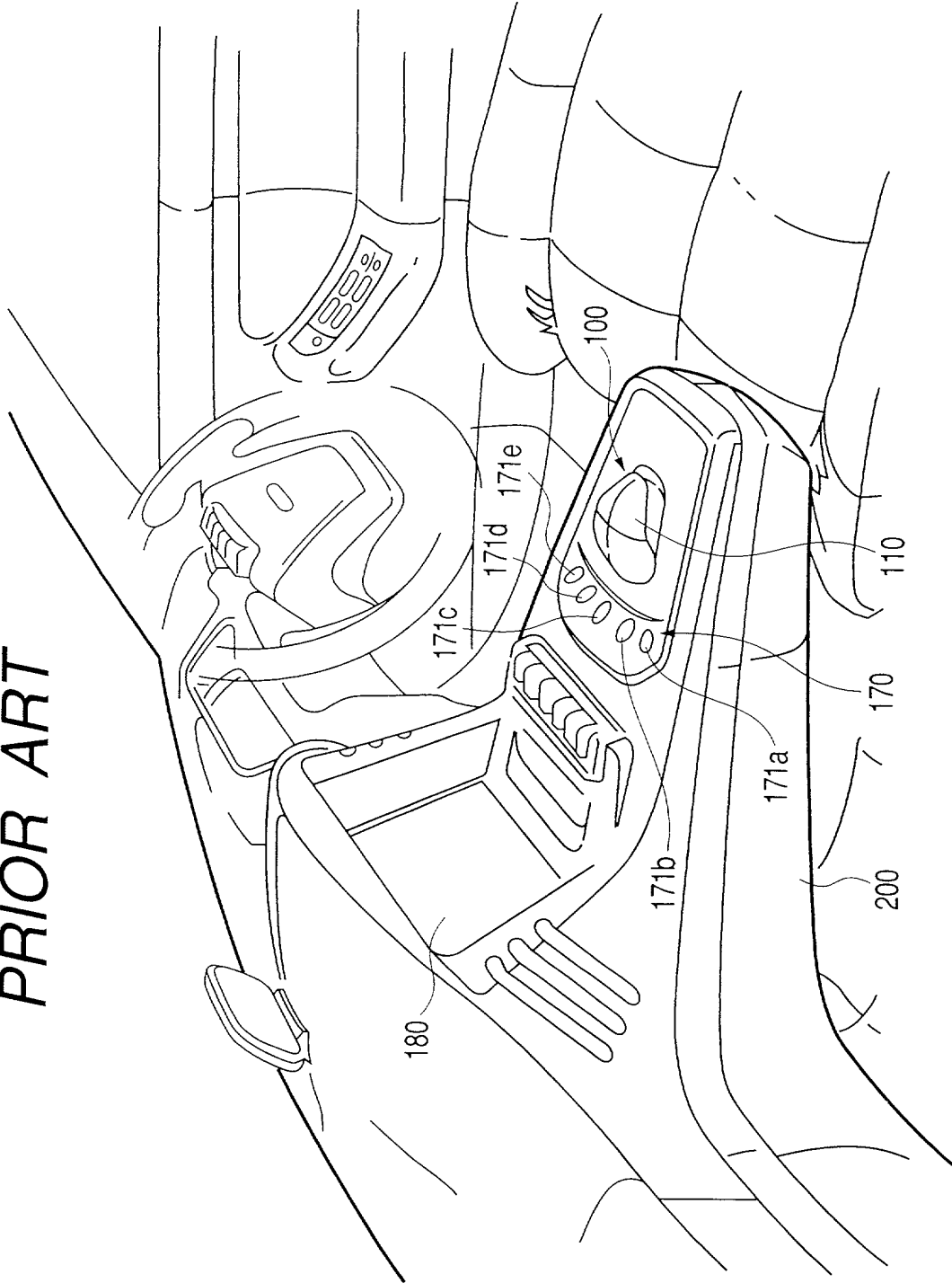


*FIG. 13*



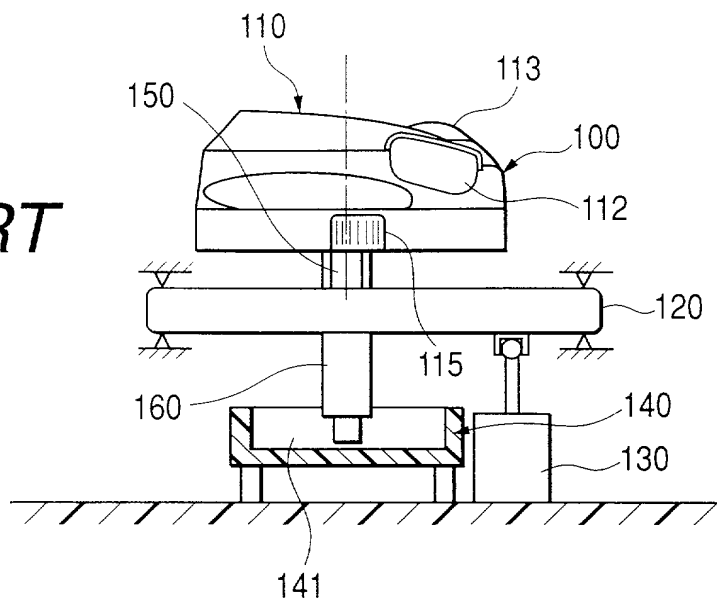
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FIG. 14  
PRIOR ART

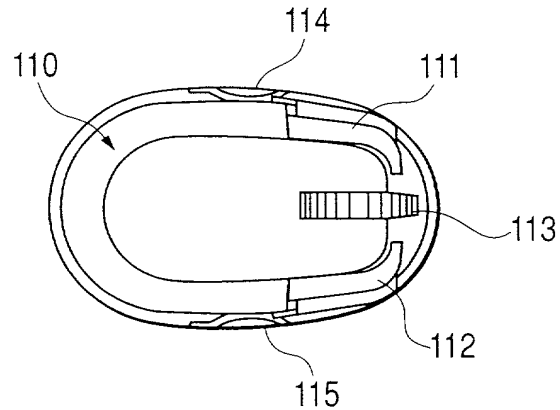


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**FIG. 15**  
**PRIOR ART**



**FIG. 16**  
**PRIOR ART**



**FIG. 17**  
**PRIOR ART**

